

Narrowband Direction of Arrival Estimation for Antenna Arrays

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ABSTRACT

This book provides an introduction to narrowband array signal processing, classical and subspace-based direction of arrival (DOA) estimation with an extensive discussion on adaptive direction of arrival algorithms. The book begins with a presentation of the basic theory, equations, and data models of narrowband arrays. It then discusses basic beamforming methods and describes how they relate to DOA estimation. Several of the most common classical and subspace-based direction of arrival methods are discussed. The book concludes with an introduction to subspace tracking and shows how subspace tracking algorithms can be used to form an adaptive DOA estimator. Simulation software and additional bibliography are given at the end of the book.

KEYWORDS

smart antennas, array processing, adaptive antennas, direction of arrival, DSP

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